AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1-44. Canceled.

45. (Previously presented) A towable marine acoustic source apparatus, comprising:

an array including at least a first cluster, said first cluster including at least two acoustic sources each having a longitudinal axis, said first cluster being defined by a spatial relationship wherein:

(a) said acoustic sources are disposed at a substantially common depth,

(b) each said longitudinal axis of said sources are substantially orthogonal to a pre-determined direction of towing; and

(c) each said longitudinal axis of said sources are substantially orthogonal to a horizontal plane.

46. (Previously presented) The apparatus of claim (45) wherein said first cluster comprises at least two air guns.

47. (Previously presented) The apparatus of claim (46) wherein said air guns each have a connection interface adapted for receiving one of gas, electrical power, said connection interfaces being oriented in substantially the same direction.

48. (Previously presented) The apparatus of claim (46) wherein said air guns each have a pre-defined center, said air guns having a center-to-center spacing is no greater than about D_s, where D_s is calculated by the equation: $D_s = .62 \cdot V^{1/3}$ meters, where V is a volume of a largest operative acoustic source in cubic inches.

49. (Previously presented) The apparatus of claim (46) wherein said air guns each have a pre-defined center, said air guns having a center-to-center spacing that is no less than $(D_c - (D_c)(50\%))$, where D_c is calculated by the equation: $D_c = 2\left(\frac{3}{4\pi}\frac{P}{P_o}V\right)^{1/3}$, where P is an acoustical source absolute pressure, Po is an ambient absolute pressure, and V is a volume of said acoustical source in said cluster.

50. (Previously presented) A method of performing a marine seismic survey, comprising:

(a) towing a plurality of acoustic sources each having a longitudinal axis; and

(b) providing an array having at least a first cluster, the first cluster being formed by:

(i) positioning the acoustic sources along a plane generally parallel with a water surface; and

(ii) aligning the longitudinal axis of each acoustic source substantially orthogonal to a pre-determined direction of towing; and

(iii) aligning the longitudinal axis of each acoustic source substantially orthogonal to the water surface.

51. (Previously presented) The method of claim (50) wherein the air guns each have a pre-defined center, the air guns having a center-to-center spacing is no greater than about D_s, where D_s is calculated by the equation: $D_s = .62 \cdot V^{1/3}$ meters, where V is a volume of a largest operative acoustic source in cubic inches.

52. (Previously presented The method of claim (50) further comprising:

defining a center for each air gun; and

maintaining a center-to-center spacing no less than (D_c – (D_c)(50%)), where D_c is calculated by the equation: $D_c = 2\left(\frac{3}{4\pi}\frac{P}{P_o}V\right)^{1/3}$, where P is an acoustical source absolute pressure, Po is an ambient absolute pressure, and V is a volume of the air gun in the cluster.

53. (Previously presented) The method of claim (50) further comprising forming a second cluster of at least two air guns each having ports; positioning the second cluster adjacent the first cluster; and aligning the ports of the second cluster air guns along a second plane that is substantially parallel with the first plane.

54. (Previously presented) A marine acoustic source system, comprising:

(a) an acoustic array including at least one cluster, said cluster having at least two acoustic sources, said sources each having a longitudinal axis, said cluster being defined by a spatial relationship wherein:

(i) said acoustic sources are aligned in a plane generally parallel with

the water surface;

(ii) each said longitudinal axis of said sources are substantially orthogonal to a pre-determined direction of towing;

(iii) each said longitudinal axis of said sources are substantially orthogonal to the water surface;

(b) a supply line operatively connected to said acoustic array, said supply line adapted to convey one of power and data to said acoustic array;

(c) a termination matable with said supply line;

(d) a tow line connected to said termination for towing said array through water; and

(e) a service vessel to which said tow line is attached.